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Supplement to

Physical Characteristics

of some representative Louisiana soils

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This report has been prepared by the Agricultural Research Service, and covers a part of the cooperative survey and investigations of the Lower Mississippi River and tributaries made by the Agricultural Research Service, Forest Service, and Soil Conservation Service, U. S. Department of Agriculture, under Section 6, Public Law 566, 83d Congress, in cooperation with the Mississippi River Commission.

SUPPLEMENT TO PHYSICAL CHARACTERISTICS OF SOME REPRESENTATIVE LOUISIANA SOILS[1/]

Zane F. Lund, Lester L. Loftin, and Sherod L. Earle[2/]

INTRODUCTION

In recent years increased attention has been focused on soil moisture control as another way of improving farm efficiency. In Louisiana, this may involve water removal by drainage, irrigation, or a combination of drainage and irrigation. Rainfall, particularly since 1950, has been such that periods of inadequate, or quite excessive, rainfall have occurred almost every year during the growing season.

From 1951 through 1954, and again in 1956, there were extended dry periods in the summer months. In other years, cotton yields have been reduced and

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1/ The data of this report represent an addition to ARS 41-33 entitled "Physical Characteristics of Some Representative Louisiana Soils," issued in January 1960. Joint contribution of the Agricultural Research Service and Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station, cooperating.

2/ Zane F. Lund, Soil Scientist, and Sherod L. Earle, formerly Assistant Soil Scientist, Eastern Soil and Water Management Research Branch, Soil and Water Conservation Research Division, Agricultural Research Service, USDA, located at Louisiana Agricultural Experiment Station, Baton Rouge, La.; and Lester L. Loftin, Soil Specialist, Soil Conservation Service, USDA, located at Alexandria, La.

Acknowledgments are made to D. L. Fontenot, State Soil Scientist, Soil Conservation Service, for aid in selecting series to be sampled; and Dr. W. H. Patrick, Agronomy Dept., Louisiana State University, for serving in an advisory capacity on this work.

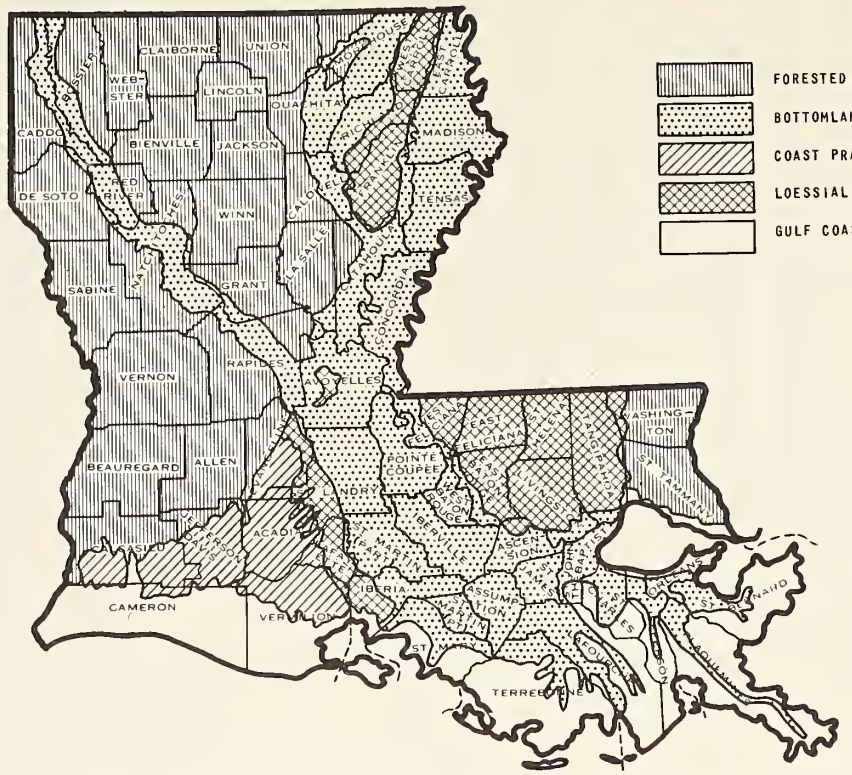
cane harvests hindered by long wet periods. Irrigation and drainage, sometimes both in the same year, have been profitable in alleviating extremes in moisture caused by poor rainfall distribution. Some understanding of soil physical properties and soil-water relations is necessary before efficient systems of irrigation or drainage can be devised.

This report is intended to supplement ARS 41-33, "Physical Characteristics of Some Representative Louisiana Soils," which was published to supply useful information in the planning of irrigation or drainage systems. This is a continuation of that work.

SOILS STUDIED

Most of the soils presented in this supplement are in the Red-Yellow Podzolic group of the forested coastal plains area. There are 10 profiles, 3 of Beauregard, 4 of Caddo, 2 of Bowie, and 1 of Ruston. Beauregard, Caddo, and Bowie are closely associated. Differences in the profiles are due to differences in drainage; Beauregard is the best drained of the three. These soils are used for pasture and much of the area in which they are found is forested. They were used for a more intensive agriculture in the past.

Ruston is a better drained soil than Beauregard, Caddo, and Bowie. At one time it was used extensively for cotton and corn. Now, however, Ruston is used primarily for pasture and tree crops.



FORESTED COASTAL PLAIN

BOTTOMLANDS AND LOW TERRACES

COAST PRAIRIE

LOESSIAL TERRACES AND LOESSIAL HILLS

GULF COAST MARSH

GENERALIZED SOIL AREA MAP
LOUISIANA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ALEXANDRIA, LOUISIANA

USDA SCS FORT WORTH TEX 1958

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Lakeland is classified as a regosol (Red-Yellow Podzolic Intergrade). The soil type has poor profile development and as a result of the high sand content, moisture retention and soil fertility are low.

Two planosols, Crowley and Acadia, were analyzed. These soils developed under prairie conditions and have extremely poor internal drainage. They are utilized most satisfactorily for rice or pasture.

Lexington is also classified as a Red-Yellow Podzolic. It consists of a shallow loessial mantle over coastal plains material. The surface soil has a high silt content, whereas the underlying coastal plains material is predominantly a sandy clay. Large areas of Lexington are in pine trees.

Grenada is a Gray-Brown Podzolic soil, and like the Lexington composed of loess overlying coastal plains material. The loess mantle is deeper than on the Lexington. It is used predominantly for pasture.

The Roebuck clay is a Grumosol, the only Red River alluvium in this report. It is fine textured soil, has poor internal drainage, and is used for rice and pasture.

SAMPLING LOCATIONS AND PROCEDURES

The series to be sampled and the sampling sites (see fig. 1) were chosen by the Soil Conservation Service, United States Department of Agriculture. The majority of the locations chosen had already been established for the site index studies, and location descriptions were

available. The sample sites for the 10 Red-Podzolic profiles in the forested coastal plains soils were in Beauregard, Allen, Rapides, and Grant Parishes. Lakeland was from Natchitoches Parish, Roebuck from St. Landry, Lexington from East Feliciana, Grenada from West Feliciana, and Crowley and Acadia from Rapides.

Although four Caddo soils were sampled, a distance of at least 5 miles was allowed between each sample location. An effort was made to obtain a range within the series.

All locations were sampled by horizons down to 36 inches. Bulk samples were obtained for the moisture desorption data, particle size analysis, and particle density analysis. Quadruplicate cores were obtained by using a Uhland-type sampler and 3- by 3-inch aluminum rings. The cores were used for bulk density measurements, permeability, noncapillary porosity, and total porosity. Because it was difficult to obtain valid cores in some of the finer textured soils, the data of these cores are not reported.

LABORATORY PROCEDURES

Air-dried and sieved soil was used for the determination of the moisture desorption characteristics. Pressure cells were used for the 15-, 4-, 2-, and 1-atmosphere points. A pressure cooker was used for the 2/3, 1/2, and 1/3 atmospheres. Percent clay was determined by hydrometer, percent sand by sieving, and percent silt by difference. Particle density was measured by

placing a known weight of oven-dry soil in a 250-ml. volumetric flask, saturating the sample under suction, and bringing it up to volume with distilled water.

The cores were brought into the laboratory, trimmed, allowed to saturate overnight, and placed on a permeability rack designed to give a hydraulic gradient of 2. Water was allowed to percolate through the sample for 24 hours; then the percolate was caught over a 1-hour increment of time to measure the saturated permeability rate. After this, the cores were weighed, placed on a tension table, and subjected to a tension of 60 cm. of water for 48 hours. They were then weighed and placed in a forced-draft oven for 48 hours. Total porosity was calculated by means of particle density and net oven-dry weight.

USE OF SOIL MOISTURE DATA

It is beyond the scope of this report to detail the possible use of soil moisture data, but this report could serve as a preliminary guide in planning moisture control work. Modifications will be necessary to fit individual cases. In fine-textured soils, it would be desirable to select a suction value slightly higher than 1/3 atmosphere for field capacity. In coarse-textured soils a much lower suction value may more closely approximate field capacity. Usually errors will be small by using the 15-atmosphere suction value for wilting point. The difference between the tension point

selected for field capacity and the 15-atmosphere point will approximate the amount of moisture held by the soil that is available to plants.

This quantity (on a percent weight basis) when multipled by bulk density and the depth of the horizon in inches will give the amount of water in horizon that is available to plants. By adding the water held in the different layers in the probable rooting depth, the moisture the soil will hold at field capacity may be computed. When this figure is divided by daily evapotranspiration rate, irrigation frequency may be estimated. This, in addition to infiltration rate, determines duration and rate of irrigation. Rooting depth will be determined by plant age, health, species, and soil texture. Dense soil layers and bulk density will also affect rooting depth. When combined with a statistical compilation of weather data (probability of drought and excess rainfall periods such as developed by C.H.M. van Bavel), this information should help determine the feasibility of an irrigation program. Soils information must be developed along this line before an efficient irrigation system can be designed. Such information should also be used as the basis in designing a drainage system.

Figure 1. Sample sites of 16 soil types in Louisiana.
(See following page for identification.)

SOILS ANALYZED

I. Bottom Lands and Low Terrace Soils

Series	Sample No.
Roebuck	53

II. Coastal Prairie Soils

Series	Sample No.
Crowley	50

III. Loessial Terrace and Loessial Hill Soils

Series	Sample No.
Grenada	52
Lexington	51

IV. Forested Coastal Plains Soils

Series	Sample No.
Acadia	47
Beauregard	38, 42, 43
Bowie	39, 44
Caddo	45, 46, 48, 49
Lakeland	40
Ruston	41

SOIL PROFILE DESCRIPTION

Sample 38

Soil Type: Beauregard silt loam
Classification: Red-Yellow Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Imperfectly drained
Parent Material: Stratified sands, silts, and clays of Pleistocene age
Area: Rapides Parish, Louisiana
Location: SW, NW, Sec. 26, R3W, T1N, 0.6 mi. east of River road, 250 ft. north of Sunset Lookout Tower road, in fenced forestry experimental plot

Horizon	Depth	Description
* A_1	0"- 4"	Very dark grayish brown (10YR 3/2)silt loam; weak medium granular structure, friable; few fine hard concretions; medium acid, pH 6.0.
A_2	4"- 7"	Brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; some surface material present in streaks; few fine hard concretions; strongly acid, pH 5.5.
B_1	7"-12"	Variegated light yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) heavy silt loam; weak medium subangular blocky structure; friable; few fine hard concretions, very strongly acid, pH 5.0.
* B_{21}	12"-19"	Pale brown (10YR 6/3) clay loam with common medium, distinct, strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; firm; patchy clay films; few fine to medium soft to hard reddish concretions; strongly acid, pH 5.0.
B_{22}	19"-34"	Pale brown (10YR 6/3) silty clay loam with common, medium, distinct, strong brown (7.5YR 5/6) and gray (10YR 6/1) mottles; weak coarse angular blocky structure; firm; slightly compacted; few patchy clay films; few fine to medium soft to hard reddish concretions; few vertical streaks of (10YR 7/2) silt loam; very strongly acid, pH 5.0.
* B_{3g}	34"-42"+	Variegated gray (10YR 6/1) and light yellowish brown (10YR 6/4) silt loam; very strongly acid, pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 4/1/59.

* SCS & LDH Sample Numbers: 3-40-1(0-4)-59; S-40-2(12-19)-59; S-40-3(34-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
38 A_1	0"- 4"	13.6	51.8	34.5	SiL*	2.56
38 A_2	4"- 7"	15.0	52.5	32.5	SiL	2.60
38 B_1	7"-12"	18.2	53.8	28.0	SiL	2.59
38 B_{21}	12"-19"	29.2	47.4	23.5	CL	2.61
38 B_{22}	19"-34"	32.0	47.9	20.1	SiCL	2.61
38 B_{3g}	34"-42"+	25.2	51.7	23.2	SiL	2.62

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. % [1]	Moisture at Coring % O.D.Wt.
38 A_1	1.33	0.51	48.2	6.2	33.8
38 A_2	1.39	.21	43.0	4.1	26.1
38 B_1 [2]					
38 B_{21} [2]					
38 B_{22} [2]					
38 B_{3g} [2]					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
38 A_1	5.1	6.0	7.3	9.3	12.4	18.7	20.2
38 A_2	4.0	5.5	7.1	9.2	12.2	15.0	18.6
38 B_1	5.9	7.9	10.1	12.7	15.9	18.4	21.1
38 B_{21}	9.8	12.7	15.4	18.1	20.6	23.3	24.6
38 B_{22}	10.1	13.1	15.6	18.3	21.1	23.2	26.1
38 B_{3g}	7.9	10.6	13.2	16.1	19.3	22.4	24.9

* In these tables the following symbols are used:
C - Clay, L - Loam, S - Sand, Si - Silt.

[1] Too sticky to core.

[2] Pores drained at 60 Cm. Tension.

SOIL PROFILE DESCRIPTION

Sample 39

Soil Type: Bowie loam
Classification: Red-Yellow Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Moderately well drained
Parent Material: Stratified sands, silts, and clays of Pleistocene age
Area: Rapides Parish, Louisiana
Location: NE, SW, Sec. 4, T2N, R3W, 300 ft. north of Hwy. 278, in forestry experimental plot

Horizon	Depth	Description
* A_1	0"- 4"	Very dark gray (10YR 3/1) loam; moderate fine granular structure; friable; medium acid, pH 6.
A_2	4"- 8"	Dark grayish brown (10YR 4/2) loam; weak medium subangular blocky structure; friable; strongly acid, pH 5.5.
B_1	8"-13"	Yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; friable; strongly acid; pH 5.5.
* B_2	13"-36"	Yellowish brown (10YR 5/6) clay loam with common medium distinct yellowish red (5YR 5/6) mottles; moderately fine subangular blocky structure; firm; patchy clay films; few soft reddish concretions; very strongly acid; pH 5.0.
* C	36"-42"+	Brownish yellow (10YR 6/6) clay loam with common medium distinct yellowish red (5YR 5/6) and gray (10YR 6/1) mottles; common soft to hard reddish concretions; very strongly acid; pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 3/25/59.

* SCS & LDH Sample Numbers: S-40-4(0-4)-59; S-40-5(13-36)-59; S-40-6(36-48)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
39 A_1	0"- 4"	14.9	40.2	42.2	L	2.53
39 A_2	4"- 8"	19.4	43.8	36.8	L	2.60
39 B_1	8"-13"	27.3	41.6	31.0	CL	2.61
39 B_2	13"-36"	32.9	38.6	28.4	CL	2.62
39 C	36"-42"+	29.3	35.2	35.6	CL	2.62

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. % [1]	Moisture at Coring % O.D.Wt.
39 A_1	1.24	1.04	51.0	10.5	29.2
39 A_2	1.43	.42	45.1	7.9	20.6
39 B_1	1.54	.07	41.4	4.7	22.0
39 B_2	1.49	.50	42.3	5.6	23.1
39 C [2]					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
39 A_1	6.1	7.3	9.1	11.6	14.7	17.1	21.2
39 A_2	5.3	6.9	8.9	11.6	14.2	16.5	19.4
39 B_1	7.7	10.0	12.2	14.7	16.8	19.0	21.5
39 B_2	9.9	12.4	14.9	17.4	19.8	21.6	23.8
39 C	8.9	11.1	12.8	14.8	17.2	18.6	20.2

1/ Pores drained at 60 Cm. Tension.

2/ Unable to obtain cores.

SOIL PROFILE DESCRIPTION

Sample 40

Soil Type: Lakeland sand, shallow phase
Classification: Regosol - Red-Yellow Podzolic Intergrade
Topography: Gently sloping (3-5% slope)
Drainage: Somewhat excessively drained
Parent Material: Sand beds of coastal plain origin
Area: Natchitoches Parish, Louisiana
Location: Sec. 7, T6N, R6W, 1 mi. NE of Red Dirt Lookout Tower, 50 ft. south of woods road in forestry experimental plot

Horizon	Depth	Description
* A_1	0"- 5"	Dark gray (10YR 4/1) sand; single grain; loose; medium acid, pH 6.
A_2	5"-11"	Pale brown (10YR 6/3) sand; single grain; loose; medium acid, pH 6.
* C_1	11"-31"	Pale brown (10YR 6/3) or very pale brown (10YR 7/3) sand; single grain; loose; strongly acid, pH 5.5.
* C_2	31"-42"+	Very pale brown (10YR 7/3) sand; single grain; loose; few (7.5YR 5/6) balls of sandy loam; strongly acid, pH 5.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 4/3/59.

* SCS & LDH Sample Numbers: S-35-1(0-5)-59; S-35-2(11-31)-59; S-35-3(31-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
40 A_1	0"- 5"	4.1	0.3	95.6	S	2.57
40 A_2	5"-11"	3.9	1.5	94.6	S	2.60
40 C_1	11"-31"	6.2	0.8	93.0	S	2.60
40 C_2	31"-42"+	6.8	0.4	92.8	S	2.60

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
40 A_1	1.34	18.1	47.9	29.2	6.4
40 A_2	1.43	30.1	45.2	30.0	6.0
40 C_1	1.41	12.4	45.7	24.7	7.6
40 C_2	1.43	25.2	45.1	27.3	8.7

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
40 A_1	2.3	2.3	2.8	2.9	3.1	3.7	3.9
40 A_2	1.1	1.4	1.7	1.8	2.0	2.4	2.6
40 C_1	1.8	2.4	2.5	2.6	2.6	3.6	3.8
40 C_2	2.0	2.7	3.0	3.3	3.6	3.9	4.0

SOIL PROFILE DESCRIPTION

Sample 41

Soil Type: Ruston sandy loam
Classification: Red-Yellow Podzolic
Topography: Gently sloping (3-5% slope)
Drainage: Well drained
Parent Material: Stratified sand, silts, and clays of Pleistocene age
Area: Grant Parish, Louisiana
Location: NE, SE, Sec. 1, R1W, T6N, 0.9 mi. west of Pollock, 100 ft. north of La. Hwy. 8

Horizon	Depth	Description
* A_1	0"- 6"	Very dark gray (10YR 3/1) sandy loam; moderate medium granular structure; very friable; strongly acid, pH 5.5.
A_2	6"- 9"	Grayish brown (10YR 5/2) sandy loam with few streaks of dark gray; very weak medium subangular blocky structure; very friable; strongly acid, pH 5.5.
* B_{21}	9"-17"	Dark red (2.5YR 3/6) yellowish red (5YR 4/6) crushed loam; moderate fine to medium, subangular blocky structure; firm; complete clay films on peds; very strongly acid, pH 5.0.
* B_{22}	17"-52"+	Yellowish red (5YR 4/6) light sandy clay loam, with ped coating slightly redder in color; weak medium subangular blocky structure; friable; very thin complete clay films on peds; very strongly acid, pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/15/59.

* SCS & LDH Sample Numbers: S-40-10(0-6)-59; S-40-11(9-17)-59; S-40-12(36-52)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
41 A_1	0"- 6"	10.0	22.7	67.3	SL	2.58
41 A_2	6"- 9"	10.4	21.2	68.4	SL	2.57
41 B_{21}	9"-17"	32.9	18.8	48.3	L	2.62
41 B_{22}	17"-52"	22.2	18.6	59.2	SCL	2.60
41 B_3	52"-60"+	21.4	6.0	72.6	SCL	2.60

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
41 A_1	1.41	2.61	45.3	14.9	8.7
41 A_2	1.48	1.77	42.3	12.3	8.6
41 B_{21}	1.59	.10	39.3	4.5	18.5
41 B_{22}	1.68	.22	35.1	6.8	13.1
41 B_3	1.64	.32	37.0	9.3	11.8

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
41 A_1	3.0	4.1	5.3	7.0	8.7	10.0	13.2
41 A_2	2.2	3.1	4.2	5.7	7.2	8.4	10.5
41 B_{21}	11.6	14.3	15.8	17.5	18.7	20.3	22.6
41 B_{22}	6.1	7.7	8.9	10.6	12.0	13.1	15.7
41 B_3	8.0	9.4	10.4	11.0	12.2	13.0	14.5

SOIL PROFILE DESCRIPTION

Sample 42

Soil Type: Beauregard silt loam
Classification: Red-Yellow Podzolic
Topography: Nearly level
Drainage: Imperfectly drained
Parent Material: Stratified sands, silts, and clays of Pleistocene age
Area: Beauregard Parish, Louisiana
Location: NW, NW, Sec. 11, T6S, R9W, 5 mi. SW of Longville, 15 mi. east on oil field road from Parish road and 100 ft. south

Horizon	Depth	Description
* A_1	0"- 3"	Very dark grayish brown (10YR 3/2) silt loam; weak fine and very fine subangular blocky structure; very friable; very porous; pH 6.0.
A_2	3"- 8"	Light yellowish brown (10YR 6/4) silt loam with light peppering of fine pale brown mottles; tends to be massive but breaks readily into weak fine subangular blocky structure; porous; few dark spots of humus; pH 5.0.
B_1	8"-16"	Brownish yellow (10YR 6/8) silt loam with some shading to light yellowish brown and few medium mottles of reddish yellow (5 YR 6/8); fine weak subangular blocky structure; friable; slightly plastic; patchy clay films; tubular pores common; pH 5.5.
* B_{21g}	16"-27"	Light gray (10YR 7/2) silty clay loam with many medium mottles of brownish yellow (10YR 6/6); weak fine angular blocky structure; some medium soft friable concretions of red materials; clay films common on aggregates and in pores; tubular pores common; pH 5.0.
B_{22g}	27"-40"	Light gray (10YR 7/1) silty clay loam with many coarse mottles of yellowish brown (10YR 5/8); few soft red concretions; horizon consists of interspersed portions of silty clay, clay, and silty clay loam; few patchy clay films; few pores; pH 5.0.
* B_{3g}	40"-42"+	Light gray (10YR 7/1) silty clay loam with many coarse mottles of yellowish brown (10YR 5/8); few soft red concretions; horizon consists of interspersed portions of silt clay, clay, and silty clay loam; few patchy clay films; few pores; pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. This is also soil characterization sample S57-LA-6-2-(1-6). Textures from mechanical analyses.
Described by: Marvin Lawson, Soil Conservation Service - 11/5/57.
* SCS & LDH Sample Numbers: S-6-1(0-3)-59; S-6-2(16-27)-59; S-6-3(40-48)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
42 A_1	0"- 3"	12.4	55.6	32.0	SiL	2.55
42 A_2	3"- 8"	20.8	50.6	28.5	SiL	2.62
42 B_1	8"-16"	27.0	48.7	24.2	SiL	2.64
42 B_{21g})	16"-40"	31.2	46.2	22.6	SiCL	2.63
42 B_{22g})						
42 B_{3g}	40"-42"+	32.4	45.6	22.1	SiCL	2.63

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
42 A_1	1.36	0.59	46.9	4.7	31.6
42 A_2	1.41	.29	46.2	6.9	23.1
42 B_1 1/					
42 B_{21g} 1/					
42 B_{22g} 1/					
42 B_{3g} 1/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 2/ atm.T.	1/2 2/ atm.T.	1/3 atm.T.
42 A_1	6.2	6.9	7.9	10.3	13.6	14.1	26.9
42 A_2	7.5	9.4	11.1	12.9	15.3	16.2	24.8
42 B_1	9.4	11.9	13.8	17.0	19.3	19.9	27.0
42 B_{21g})	11.0	13.8	15.9	18.7	21.4	22.2	27.9
42 B_{22g})							
42 B_{3g}	11.1	14.0	15.8	18.6	21.2	21.5	26.4

1/ Too sticky to core.

2/ The 2/3 atmosphere and 1/2 atmosphere data appeared unusually close, so both points were run again in triplicate. Results were similar to the first run.

SOIL PROFILE DESCRIPTION

Sample 43

Soil Type: Beauregard silt loam
Classification: Red-Yellow Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Imperfectly drained
Parent Material: Stratified sand, silts, and clays of Pleistocene age
Area: Beauregard Parish, Louisiana
Location: NW, SE, Sec. 32, T5S, R8W, 1.6 mi. east on oil field road from U.S. Hwy. 171 and 100 ft. south

Horizon	Depth	Description
* A_1	0"-2 1/2"	Very dark grayish brown (10YR 3/2) silt loam; weak very fine subangular blocky structure; very friable; charcoal fragments common; clear wavy boundary; pH 6.0.
A_2	2 1/2"-6"	Light yellowish brown (10YR 6/4) silt loam with few spots of pale brown (10YR 6/3); pale brown does not appear to be due to reduction; weak fine subangular blocky structure; very friable; very porous but tubular pores few; pH 5.5.
B_1	6"-10"	Pale brown (10YR 6/3) silt loam with about 10 percent medium prominent mottles of reddish yellow (10YR 6/8); weak fine angular blocky structure; friable; tubular pores common and lined with thin clay film; scattered clay films on peds; few fine hard concretions; common soft concretions yellowish red internally; pH 5.0.
* B_{21}	10"-19"	Brownish yellow (10YR 6/6) silty clay loam with many medium and coarse mottles of light gray (10YR 7/2) and occasional red mottles; weak fine angular and subangular blocky structure; friable, slightly plastic; few tubular pores, lined with clay film; clay films scattered on aggregates; few fine hard concretions; some friable concretions red internally; pH 5.0.
B_{22g}	19"-41"	Light gray (10YR 7/1) silty clay loam with common coarse red (10YR 4/6) and medium reddish yellow (7.5YR 6/6) mottles; red seems included in soft friable concretionary material; weak medium angular blocky structure; friable; slightly plastic; few tubular pores with thin clay lining; few patchy clay films; pH 5.0.

SOIL PROFILE DESCRIPTION

Sample 43
(Continued)

Horizon	Depth	Description
* B_{3g}	41"-42"	Red (2.5YR 5/8) silty clay loam masses interspersed with masses of light gray (5YR 7/1) clay, clay sections containing some mottles of yellowish brown; medium and coarse angular blocky; red masses firm to friable; gray masses plastic; red soil makes about two-thirds of the soil mass; red soil is more porous than the clay soil ; medium tubular pores with clay lining are common; pH 5.5.

Remarks: pH Helliage-Troug field kit. All colors are for moist condition. This is also soil characterization sample S-57-LA-6-1(1-8). Textures from mechanical analyses.

Described by: Marvin Lawson, Soil Conservation Service - 11-5-57.

* SCS & LDH Sample Numbers: S-6-4(0-2)-59; S-6-5(10-19)-59; S-6-6(41-48)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
43 A_1)	0" - 6"	13.4	65.2	21.4	SiL	2.57
43 A_2)						
43 B_1	6" -10"	23.1	58.8	18.7	SiL	2.61
43 B_{21}	10" -19"	26.4	57.6	15.9	SiL	2.62
43 B_{22g}	19" -41"	29.4	54.8	15.7	SiCL	2.63
43 B_{3g}	41" -42"+	38.8	48.8	12.4	SiCL	2.63

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D. Wt.
43 A_1)	1.41	0.09	45.1	5.2	28.2
43 A_2)					
43 B_1	1.50	.19	43.5	4.4	24.6
43 B_{21}	1.52	.01	41.8	3.5	25.6
43 B_{22g}	1.54	.11	41.5	3.8	25.8
43 B_{3g} 1/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
43 A_1)	4.9	6.5	8.1	11.4	15.1	18.6	23.3
43 A_2)							
43 B_1	7.9	10.4	12.2	15.8	19.0	21.8	25.3
43 B_{21}	8.5	11.1	13.3	17.2	20.7	23.3	26.5
43 B_{22g}	9.9	12.5	14.5	18.3	20.9	21.8	29.1
43 B_{3g}	14.3	18.0	20.5	24.5	26.3	27.5	31.2

1/ Too sticky to core.

SOIL PROFILE DESCRIPTION

Sample 44

Soil Type: Bowie very fine sandy loam
Classification: Red-Yellow Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Well drained
Parent Material: Stratified sand, silts, and clays of Pleistocene age
Area: Beauregard Parish, Louisiana
Location: NW, NE, Sec. 17, R8W, T3S, 0.6 mi. south of La. Hwy. 26, 100 ft. east of highway

Horizon	Depth	Description
* A_1	0"- 5 1/2"	Dark gray (10YR 4/1) very fine sandy loam; weak fine and medium granular structure; very friable; very porous; pH 6.0.
A_2	5 1/2"- 9"	Pale brown (10YR 6/3) very fine sandy loam with a few dark gray streaks; weak fine subangular blocky structure; very friable; pH 6.
* B_{21}	9"-18"	Strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly plastic; thin patchy clay films; few medium hard concretions; very porous but few tubular pores; pH 5.5.
B_{22}	18"-36"	Yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; patchy clay films; few medium and coarse hard concretions; few tubular pores; pH 5.0.
* B_3	36"-42"+	Brownish yellow (10YR 6/6) sandy clay loam with few medium mottles of red (2.5YR 5/8); weak fine and medium angular blocky structure; friable to somewhat firm; clay films common but discontinuous; few clay-lined tubular pores; few coarse hard concretions; pH 5.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. This is also soil characterization sample S57-LA-6-6-(1-8). Textures from mechanical analyses.

Described by: Marvin Lawson, Soil Conservation Service - 11/7/57.

* SCS & LDH Sample Numbers: S-6-7(0-5)-59; S-6-8(9-18)-59; S-6-9(36-48)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
44 A_1	0"-5 1/2"	6.9	23.8	69.2	SL	2.58
44 A_2	5 1/2"- 9"	8.1	23.7	68.2	SL	2.60
44 B_{21}	9"-18"	26.1	22.8	51.1	SCL	2.62
44 B_{22}	18"-36"	28.2	24.3	47.6	SCL	2.62
44 B_3	36"-42"+	29.3	21.7	49.0	SCL	2.63

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
44 A_1	1.35	3.73	48.1	13.5	14.6
44 A_2	1.38	2.65	46.9	12.0	11.9
44 B_{21}	1.54	.12	41.1	4.5	16.0
44 B_{22}	1.62	.24	38.3	4.8	18.5
44 B_3	1.62	.21	38.2	5.5	18.4

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
44 A_1	3.9	4.2	4.4	5.1	6.0	8.3	11.8
44 A_2	2.2	2.5	3.0	4.4	5.6	6.1	8.6
44 B_2	8.9	10.9	12.0	13.6	14.8	15.7	17.4
44 B_{22}	9.8	11.9	13.0	14.7	16.8	17.7	18.7
44 B_3	10.7	12.7	13.7	15.3	17.0	18.1	19.1

SOIL PROFILE DESCRIPTION

Sample 45

Soil Type: Caddo silt loam
Classification: Red-Yellow Podzolic
Topography: Level (0-1% slope)
Drainage: Poorly to somewhat poorly drained
Parent Material: Stratified sands, silts, and clays of Pleistocene age
Area: Beauregard Parish, Louisiana
Location: NW, NE, Sec. 19, T6S, R8W, 0.5 mi. east of U.S. Hwy. 171, 150 ft. north of highway opposite gasoline plant

Horizon	Depth	Description
* A_1	0"- 3"	Dark gray (10YR 4/1) silt loam; weak fine and very fine subangular blocky structure, very friable; pH 5.5.
A_{2g}	3"-12"	Gray (10YR 6/1) silt loam with many medium mottles of brownish yellow (10YR 6/6); weak fine subangular blocky structure; friable; very porous, tubular pores common; few fine hard concretions; pH 4.5.
* B_{2g}	12"-18"	Gray (10YR 6/1) silt loam with many medium and coarse brownish yellow (10YR 6/6) mottlings and few medium reddish yellow (7.5YR 3/8) mottles; weak fine subangular blocky structure; friable, somewhat plastic; patchy clay films, tubular pores common with clay films; occasional fine hard concretions; pH 5.6.
B_{31g}	18"-26"	Gray (10YR 6/1) silt loam with many medium and coarse mottles of strong brown (7.5YR 5/8) and brownish yellow (10YR 6/6); weak fine and medium subangular blocky structure; firm, compact in places; patchy clay films; common tubular pores; pH 5.0.
B_{32g}	26"-39"	Light brownish gray (10YR 6/2) silt loam; common medium mottles of strong brown (7.5YR 5/8); weak medium subangular blocky structure; friable; common tubular pores well coated with clay; few clay films; occasional fine hard concretions; few charcoal fragments; pH 5.0.

SOIL PROFILE DESCRIPTION

Sample 45
(Continued)

Horizon	Depth	Description
* D_{ug}	39"-42"+	Gray (10YR 6/1) silt loam with common medium to coarse mottles of reddish yellow (7.5YR 6/8) and brownish yellow (10YR 6/6); massive large clods; firm; considerable reddish material in interiors of clods; pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. This is also soil characterization sample S57-LA-6-3-(1-7). Textures from mechanical analyses.

Described by: Marvin Lawson, Soil Conservation Service - 11/6/57.

* SCS & LDH Sample Numbers: S-6-10(0-3)-59; S-6-11(12-18)-59; S-6-12(39-48)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
45 A_1 [1]	0"- 3"					
45 A_{2g}	3"-12"	20.4	60.3	19.4	SiL	2.60
45 B_{2g}	12"-18"	26.8	58.8	14.5	SiL	2.60
45 B_{31g}	18"-26"	21.6	61.4	17.0	SiL	2.60
45 B_{32g}	26"-39"	22.5	61.0	16.5	SiL	2.60
45 D_{ug}	39"-42"+	22.9	60.8	16.2	SiL	2.61

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
45 A_1 [2]					
45 A_{2g}	1.43	0.15	44.8	5.2	24.0
45 B_{2g}	1.50	.03	42.2	4.2	26.2
45 B_{31g}	1.50	.01	41.5	4.1	22.4
45 B_{32g}	1.58	.02	39.8	4.4	21.0
45 D_{ug}	1.59	.06	39.1	4.2	21.1

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
45 A_1 [2]							
45 A_{2g}	4.8	6.6	8.9	12.1	15.7	19.2	22.8
45 B_{2g}	6.8	9.3	12.0	15.4	19.4	22.1	24.5
45 B_{31g}	5.5	7.5	9.9	13.0	16.8	20.4	22.9
45 B_{32g}	6.9	8.3	10.2	13.9	18.5	21.7	24.2
45 D_{ug}	7.6	9.1	10.9	14.8	19.5	22.8	25.0

[1] Too thin a layer to sample.

[2] Too thin a layer to core.

SOIL PROFILE DESCRIPTION

Sample 46

Soil Type: Caddo silt loam
Classification: Red-Yellow Podzolic
Topography: Level (0-1% slope)
Drainage: Poorly to somewhat poorly drained
Parent Material: Stratified sands, silts, and clays of Pleistocene age
Area: Beauregard Parish, Louisiana
Location: SW, SW, Sec. 8, R8W, T6S, 1.1 mi. east of U.S. Hwy. 171 and 100 ft. south of road

Horizon	Depth	Description
* A_1	0"- 4"	Gray (10YR 5/1) silt loam; weak, very fine subangular blocky structure; very friable; common fine and medium tubular pores; pH 5.5.
A_{2g}	4"-16"	Gray (10YR 6/1) silt loam with common medium mottles of brownish yellow (10YR 6/6); weak fine subangular blocky structure; friable; medium tubular pores common; occasional fine hard concretions; pH 5.0.
B_{1g}	16"-27"	Gray (10YR 6/1) silt loam with common medium mottles of brownish yellow (10YR 6/6) and few medium mottles reddish yellow (7.5YR 7/8); weak medium angular blocky structure; friable; common fine and medium tubular pores, clay lines; few patchy clay films; pH 4.5.
* B_{2g}	27"-42"+	Gray (10YR 6/1) silt loam with inclusions of silty clay loam; with few medium mottles of brownish yellow (10YR 6/6) and common medium mottles of red (2.5YR 4/8); weak fine angular blocky structure, somewhat plastic; few medium tubular pores with thin clay lining; patchy clay films; pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. This is also soil characterization sample S57-LA-6-4-(1-6). Textures from mechanical analyses.

Described by: Marvin Lawson, Soil Conservation Service - 11/6/57.

* SCS & LDH Sample Numbers: S-6-13(0-4)-59; S-6-14(27-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
46 A_1	0"- 4"	14.8	60.2	25.0	SiL	2.57
46 A_{2g}	4"-16"	24.2	56.2	19.6	SiL	2.60
46 B_{1g}	16"-27"	25.4	57.0	17.6	SiL	2.61
46 B_{2g}	27"-42"+	31.9	51.8	16.2	SiCL	2.62

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
46 A_1	1.32	1.00	7.4	48.6	22.1
46 A_{2g}	1.50	.01	4.6	42.5	24.2
46 B_{1g}	1.55	Tr.	3.0	40.7	24.4
46 B_{2g}	1.53	.01	3.8	41.5	26.9

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
46 A_1	4.5	4.9	6.1	9.5	13.8	17.5	20.3
46 A_{2g}	8.4	9.6	11.5	14.9	18.3	21.4	23.1
46 B_{1g}	8.1	9.7	11.8	16.3	20.0	22.9	24.7
46 B_{2g}	13.0	13.9	16.2	20.0	23.4	26.1	27.5

SOIL PROFILE DESCRIPTION

Sample 47

Soil Type: Acadia very fine sandy loam, thin surface phase
Classification: Planosol (clay pan)
Topography: Level (0-1% slope)
Drainage: Imperfectly drained
Parent Material: Silts and clays of Pleistocene age
Area: Rapides Parish, Louisiana
Location: SE, SW, Sec. 1, R4W, T2N, 0.4 mi. east of La. Hwy. 28, in Memorial Planting experimental plot

Horizon	Depth	Description
* A_1	0"- 3"	Dark gray (10YR 4/1) very fine sandy loam; weak medium granular structure; friable; few fine hard concretions; slightly acid, pH 6.5.
A_2	3"- 6"	Pale brown (10YR 6/3) loam; weak fine subangular blocky structure; friable; few small pockets of dark gray A_1 material; few very fine hard concretions; strongly acid, pH 5.5.
A_3	6"-10"	Variegated light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; few very fine hard concretions; strongly acid, pH 5.5.
* B_2	10"-24"	Light yellowish brown (10YR 6/4) clay with many medium distinct light gray (10YR 7/1) and red (2.5YR 4/6) mottles; moderate very fine subangular blocky structure; firm; few cracks and root channels filled with gray very fine sandy loam; thin complete clay films; very strongly acid, pH 4.5.
* C	24"-42"+	Light gray (10YR 7/1) clay with many fine to large distinct light yellowish brown (10YR 6/4) and red (2.5YR 4/6) mottles; moderate very fine subangular blocky structure; firm; very strongly acid, pH 5.0.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures by mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/4/59.

* SCS & LDH Sample Numbers: S-40-7(0-3)-59; S-40-8(10-24)-59; S-40-9(24-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
47 A_1	0"- 3"	13.5	33.7	52.8	SL	2.43
47 A_2	3"- 6"	19.2	31.2	49.6	L	2.60
47 A_3	6"-10"	30.1	36.3	33.6	CL	2.62
47 B_2	10"-24"	57.4	27.9	14.7	C	2.62
47 C	24"-42"+	52.7	27.7	19.6	C	2.64

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
47 A_1	1.45	1.52	40.5	5.6	21.3
47 A_2 1/					
47 A_3 1/					
47 B_2 1/					
47 C 1/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
47 A_1	4.4	6.5	8.3	10.2	12.2	14.1	17.7
47 A_2	5.2	7.4	9.1	10.9	12.4	14.1	17.1
47 A_3	9.7	12.3	14.5	17.2	20.1	21.3	24.3
47 B_2	26.5	31.2	34.4	37.5	39.2	42.1	44.7
47 C	20.6	25.6	28.8	32.2	32.9	35.6	38.3

1/ Too sticky to core.

SOIL PROFILE DESCRIPTION

Sample 48

Soil Type: Caddo silt loam, depressional phase
Classification: Red-Yellow Podzolic - Low Humic Gley Integrade
Topography: Level (0-1% slope)
Drainage: Poorly drained
Parent Material: Stratified sand, silts, and clays of Pleistocene age
Area: Allen Parish, Louisiana
Location: SE, NW, Sec. 31, R3W, T2S, 1 mi. west of O. K. Willis DX Station, 100 ft. north of Hwy. 10 sign

Horizon	Depth	Description
* A_1	0"- 5"	Light brownish gray (10YR 6/2) silt loam with few medium faint yellowish brown (10YR 5/6) mottles; weak coarse platy structure; friable; few medium hard concretions; strongly acid, pH 5.5.
B_{2g}	5"-22"	Gray (10YR 6/1) silt loam with common fine to medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; few tubular pores; few thin patchy clay films; few medium hard concretions; very strongly acid, pH 5.0.
* B_{3mg}	22"-32"	Gray (10YR 6/1) silt loam with common, fine to large distinct strong brown (7.5YR 5/6) reticulate mottles; massive; firm, somewhat cemented; tubular pores common; medium, hard concretions common; very strongly acid, pH 5.0.
* D_{ug}	32"-42"+	Gray (10YR 5/1) silty clay loam with common, fine to medium distinct, strong brown (7.5YR 5/6) reticulate mottles; massive; firm; pockets of silt loam; few soft dark concretions; very strongly acid, pH 4.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/4/59.

* SCS & LDH Sample Numbers: S-2-1(0-5)-59; S-2-2(22-32)-59; S-2-3(22-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
48 A_1	0"- 5"	14.9	63.1	22.0	SiL	2.54
48 B_{2g}	5"-22"	15.4	62.8	21.8	SiL	2.59
48 B_{3mg}	22"-32"	19.7	60.1	20.2	SiL	2.60
48 D_{ug}	32"-42"+	34.8	47.1	18.1	SiCL	2.60

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
48 A_1	1.38	0.21	45.3	7.2	18.2
48 B_{2g}	1.52	.13	41.3	6.0	17.0
48 B_{3mg}	1.57	.09	39.7	5.0	16.2
48 D_{ug}	1.54	.01	40.7	3.7	21.4

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
48 A_1	3.0	4.6	7.1	11.7	17.8	21.0	25.8
48 B_{2g}	3.3	5.1	7.2	11.6	17.5	20.0	23.4
48 B_{3mg}	4.6	6.5	8.8	12.1	18.3	21.0	24.0
48 D_{ug}	13.4	16.4	19.1	22.0	24.9	28.0	30.6

SOIL PROFILE DESCRIPTION

Sample 49

Soil Type: Caddo silt loam, depressional phase
Classification: Red-Yellow Podzolic - Low Humic Gley Intergrade
Topography: Level (0-1% slope)
Drainage: Poorly drained
Parent Material: Stratified sand, silts, and clays of Pleistocene age
Area: Allen Parish, Louisiana
Location: SE, SW, Sec. 12, R3W, T2S, 0.2 mi. south of Junction La. Hwy. 1153 and U.S. Hwy. 165, 150 ft. west of U.S. Hwy. 165

Horizon	Depth	Description
* A_1	0"- 4"	Gray (10YR 5/1) silt loam, weak fine subangular blocky structure; friable; medium acid, pH 6.0.
A_2	4"- 6"	Gray (10YR 6/1) silt loam with few fine distinct strong brown (7.5YR 5/6) mottles; very weak medium subangular blocky structure; friable; tubular pores common; strongly acid, pH 5.5.
* B_{2g}	6"-26"	Gray (10YR 6/1) silt loam with many fine to medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine hard reddish concretions; tubular pores common; few thin patchy clay films; very strongly acid, pH 5.0.
* D_{ug}	26"-42"+	Gray (10YR 6/1) silt loam with common medium to large distinct strong brown (7.5YR 5/6) and a few fine prominent yellowish red (5YR 4/6) mottles; weak fine subangular blocky structure; friable; few fine hard reddish concretions; very strongly acid, pH 4.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/11/59.

* SCS & LDH Sample Numbers: S-2-4(0-4)-59; S-2-5(6-26)-59; S-2-6(26-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
49 A_1	0"- 4"	12.4	69.1	18.5	SiL	2.58
49 A_2	4"- 6"	12.6	70.2	17.2	SiL	2.61
49 B_{2g}	6"-26"	17.1	68.0	14.9	SiL	2.57
49 D_{ug}	26"-42"+	20.0	68.6	11.4	SiL	2.58

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap Porosity Vol. %	Moisture at Coring % O.D.Wt.
49 A_1	0.47	1.24	52.0	7.4	7.2
49 A_2 1/					
49 B_{2g}	.12	1.37	46.8	7.4	8.5
49 D_{ug}	.13	1.41	45.1	5.8	21.4

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
49 A_1	6.0	9.2	9.8	13.8	18.1	23.8	33.0
49 A_2	3.8	5.6	6.5	9.8	14.3	20.0	26.2
49 B_{2g}	5.2	7.4	8.7	12.0	16.6	21.7	28.0
49 D_{ug}	11.5	14.4	16.4	19.3	22.3	27.1	32.0

1/ Too thin a layer to core.

SOIL PROFILE DESCRIPTION

Sample 50

Soil Type: Crowley silt loam, thick surface phase
Classification: Planosol (clay pan)
Topography: Level (0-1% slope)
Drainage: Poorly to somewhat poorly drained
Parent Material: Old river alluvium
Area: Rapides Parish, Louisiana
Location: Sec. 45, T4N, R2E, 0.3 mi. south of road corner and 200 yards east of road, in forestry experimental plot

Horizon	Depth	Description
* A_1	0"- 6"	Grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; rust-brown-staining around roots; few fine dark soft concretions; few tubular pores; strongly acid, pH 5.5.
A_{2g}	6"-14"	Light brownish gray (10YR 6/2) silt loam with common fine to medium strong brown (7.5YR 5/8) and dark brown (10YR 4/3) mottles; very weak medium subangular blocky structure; friable; few fine yellowish concretions; few tubular pores; very strongly acid, pH 5.0.
A_{3g}	14"-23"	Gray (10YR 6/1) silt loam with few fine to medium strong brown (7.5YR 5/8) and brown (10YR 5/3) mottles; massive; firm; common fine to medium soft to hard yellowish concretions; many tubular pores; very strongly acid, pH 5.0.
* B_2	23"-42"+	Dark gray (5YR 4/1) silty clay with many fine to medium red (2.5YR 4/8) mottles; numbers of mottles decrease with depth; strong very fine angular blocky structure; firm; continuous clay films; vertical cracks and crayfish holes filled with silt; very strongly acid, pH 4.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/11/59.

* SCS & LDH Sample Numbers: S-40-13(0-6)-59; S-40-14(23-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
50 A_1	0"- 6"	20.3	68.0	11.7	SiL	2.60
50 A_{2g}	6"-14"	23.6	65.6	10.8	SiL	2.59
50 A_{3g}	14"-23"	24.9	63.0	12.1	SiL	2.60
50 B_2	23"-42"+	48.2	46.1	5.7	SiC	2.59

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
50 A_1	1.35	0.51	47.8	5.8	24.2
50 A_{2g}	1.37	.30	47.3	7.0	22.3
50 A_{3g}	1.39	.10	46.4	6.3	22.6
50 B_2	1.43	.01	44.8	2.3	33.2

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
50 A_1	6.9	10.5	12.2	16.3	20.5	24.4	30.8
50 A_{2g}	7.8	11.7	13.4	16.9	20.9	24.0	29.0
50 A_{3g}	8.5	12.5	14.2	17.4	21.0	24.2	27.9
50 B_2	19.5	21.2	24.1	27.7	30.4	32.1	36.0

SOIL PROFILE DESCRIPTION

Sample 51

Soil Type: Lexington silt loam
Classification: Red-Yellow Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Well drained
Parent Material: Loess over sandy forested coastal plain material
Area: East Feliciana Parish, Louisiana
Location: Sec. 67, R2E, T3S, 600 ft. north of Plank Road Church on east side of La. Hwy. 67 next to fence

Horizon	Depth	Description
* A_1	0"- 3"	Very dark brown (10YR 2/2) silt loam; moderate fine granular structure; very friable; medium acid, pH 6.0.
A_2	3"- 7"	Yellowish brown (10YR 5/4) silt loam; very weak fine subangular blocky structure; very friable; medium acid, pH 6.0.
* B_2	7"-22"	Strong brown (7.5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; thin patchy clay films; very strongly acid, pH 4.5.
B_3	22"-28"	Variegated light yellowish brown (10YR 6/4) and yellowish red (5YR 4/6) light silty clay loam, strong brown (7.5YR 5/6) when crushed; strong medium angular blocky structure; firm; thin clay films; few soft dark concretions; very strongly acid, pH 4.5.
A_b	28"-42"	Variegated light yellowish brown (10YR 6/4) very pale brown (10YR 7/3) and occasional red (2.5YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; few soft yellowish concretions; very strongly acid, pH 4.5.
* B_b	42"-60"+	Red (2.5YR 4/6) sandy clay loam with light gray (10YR 7/1) and brownish yellow (10YR 6/6) streaks of sandy loam; firm; very strongly acid, pH 4.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 7/16/59.

* SCS & LDH Sample Numbers: S-19-1(0-3)-59; S-19-2(7-22)-59; S-19-3(42-60)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
51 A_1	0"- 3"	18.4	68.5	13.1	SiL	2.53
51 A_2	3"- 7"	20.2	69.6	10.2	SiL	2.60
51 B_2	7"-22"	33.4	60.7	5.9	SiCL	2.61
51 B_3	22"-28"	30.1	59.9	10.0	SiCL	2.60
51 A_b	28"-42"	1/ 27.8	56.2	16.0	SiCL	2.61
51 B_b	42"-60"+	33.2	17.9	48.9	SCL	2.62

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
51 A_1)	1.28	0.97	50.8	8.9	23.2
51 A_2)					
51 B_2	1.31	.47	49.6	8.3	23.6
51 B_3	1.46	.16	43.7	5.6	22.8
51 A_b 2/					
51 B_b 2/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
51 A_1	6.8	8.8	11.9	17.1	20.5	24.1	30.5
51 A_2	5.6	7.0	8.7	12.0	14.7	18.8	24.7
51 B_2	10.9	14.5	17.4	21.3	23.0	27.5	31.7
51 B_3	10.4	13.5	16.2	19.8	22.8	25.3	31.2
51 A_b	9.6	12.1	14.4	17.4	20.0	22.0	27.5
51 B_b	11.4	13.2	14.1	15.4	16.5	18.1	21.7

1/ Streaks run 61.5% sand; clay content about the same.

2/ Unable to obtain cores.

SOIL PROFILE DESCRIPTION

Sample 52

Soil Type: Grenada silt loam
Classification: Gray-brown Podzolic
Topography: Nearly level (1-3% slope)
Drainage: Moderately well drained
Parent Material: Loess
Area: West Feliciana Parish, Louisiana
Location: Sec. R2W, T2S, near Carney, 2.9 mi. west of Junction La. Hwy. 965 and La. Hwy. 10, 50 ft. south of La. Hwy. 10 at telephone pole

Horizon	Depth	Description
* A_p	0"- 5"	Variegated strong brown (7.5YR 5/6) and pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; very friable; very strongly acid, pH 5.0.
A_2	5"- 9"	Variegated dark yellowish brown (10YR 3/4), pale brown (10YR 5/4) silt loam; weak fine subangular blocky structure; very friable; strongly acid, pH 5.5.
* B_2	9"-18"	Dark yellowish brown (10YR 4/6) silty clay loam; yellowish brown (10YR 5/8) when peds are broken; strong fine subangular blocky structure; friable; thin continuous clay films; strongly acid, pH 5.5.
B_{3m1}	18"-28"	Brown (7.5YR 5/4) silt loam; yellowish brown (10YR 5/6) with few yellowish red, pale brown, and dark mottles when peds are broken; strong medium angular blocky structure; firm compacted; continuous clay films; tubular pores common; strongly acid, pH 5.5.
B_{3m2}	28"-35"	Dark yellowish brown (10YR 4/4) light silty clay loam; yellowish brown (10YR 5/6) with a few yellowish red and pale brown mottles when crushed; weak fine subangular blocky structure; somewhat firm; thin clay films; strongly acid, pH 5.5.
* C	35"-51"+	Variegated yellowish brown (10YR 5/4) and very pale brown (10YR 7/3) silt loam; friable; strongly acid, pH 5.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 7/16/59.

* SCS & LDH Sample Numbers: S-63-1(0-5)-59; S-63-2(0-18)-59; S-63-3(35-51)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
52 A_p	0"- 5"	15.6	78.1	6.3	SiL	2.58
52 A_2	5"- 9"	16.7	78.1	5.2	SiL	2.59
52 B_2	9"-18"	28.9	67.5	3.6	SiCL	2.63
52 B_{3m1}	18"-28"	26.4	65.0	8.6	SiL	2.62
52 B_{3m2}	28"-35"	30.0	60.1	9.9	SiCL	2.62
52 C	35"-51"+	26.8	56.2	17.0	SiL	2.62

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
52 A_p	1.41	0.52	45.3	4.2	23.4
52 A_2 1/					
52 B_2	1.40	.15	46.8	5.5	24.2
52 B_{3m1}	1.47	.22	43.7	5.2	23.2
52 B_{3m2}	1.50	.08	42.9	4.5	23.1
52 C 1/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
52 A_p	5.1	7.0	9.3	11.4	12.9	17.0	22.0
52 A_2	4.8	7.2	10.2	12.4	14.6	19.2	25.0
52 B_2	10.0	13.3	15.9	19.8	21.3	25.2	28.8
52 B_{3m1}	9.5	12.7	15.4	18.7	21.1	24.7	29.0
52 B_{3m2}	10.9	15.5	18.3	22.0	23.9	28.6	31.6
52 C	9.6	12.0	14.1	18.0	19.8	24.8	27.2

1/ Unable to obtain cores.

SOIL PROFILE DESCRIPTION

Sample 53

Soil Type: Roebuck clay
Classification: Alluvial
Topography: Level (0-1% slope)
Drainage: Poorly drained to somewhat poorly drained
Parent Material: Largely Red River alluvium
Area: St. Landry Parish, Louisiana
Location: SW, NW, Sec. 6, R4E, T3S, 1.3 mi. west of Morrow, 100 ft. north of road opposite irrigation well

Horizon	Depth	Description
* A_p	0"- 4"	Variegated dark brown (7.5YR 3/2), very dark gray (10YR 3/1) and dark reddish brown (5YR 3/3) clay with colors finely mixed; moderate very fine angular blocky structure; firm, very sticky, very plastic; moderately alkaline, pH 8.0.
C_{1g}	4"-12"	Variegated dark reddish gray (5YR 4/2) very dark gray (10YR 3/1) and reddish brown (2.5YR 4/4) clay; moderate very fine angular blocky structure; very firm, very sticky, very plastic; moderately alkaline, pH 8.0.
C_2	12"-22"	Reddish brown (2.5YR 4/4) clay with cracks and root channel filled with dark material; moderate very fine angular blocky structure; very firm, very sticky, very plastic; moderately alkaline, pH 8.0.
* C_3	22"-42"+	Reddish brown (2.5YR 4/4) clay; moderate fine angular blocky structure; very firm, very sticky, very plastic; few very small line concretions; strongly alkaline, pH 8.5.

Remarks: pH by Helliage-Troug field kit. All colors are for moist condition. Textures from mechanical analyses.

Described by: Lester L. Loftin, Soil Conservation Service - 6/11/59.

* SCS & LDH Sample Numbers: S-49-1(0-4)-59; S-49-2(22-42)-59.

SOIL PHYSICAL CHARACTERISTIC DATA

Sample No. & Horizon	Depth	% Clay	% Silt	% Sand	Textural Class	Particle Density Gm/Cm^3
53 A_p	0"- 4"	74.3	21.8	3.9	C	2.61
53 C_{1g}	4"-12"	75.6	22.2	2.2	C	2.62
53 C_2	12"-22"	72.5	26.2	1.3	C	2.66
53 C_3	22"-42"+	74.6	23.5	1.9	C	2.65

Sample No. & Horizon	Bulk Density Gm/Cm^3	Permeability In/hr	Total Porosity Vol. %	Non-Cap. Porosity Vol. %	Moisture at Coring % O.D.Wt.
53 A_p 1/					
53 C_{1g} 1/					
53 C_2 1/					
53 C_3 1/					

MOISTURE DESORPTION DATA (% BY WEIGHT)

Sample No. & Horizon	15 atm.T.	4 atm.T.	2 atm.T.	1 atm.T.	2/3 atm.T.	1/2 atm.T.	1/3 atm.T.
53 A_p	25.8	30.6	34.6	38.3	40.2	41.1	45.4
53 C_{1g}	26.6	29.7	35.1	37.4	39.6	41.0	46.1
53 C_2	25.1	29.7	34.2	37.9	40.4	41.0	44.4
53 C_3	24.1	28.7	33.4	37.0	39.5	40.3	43.8

1/ Too sticky to core.

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